Bills Notes for Technicians, Part 1
An overview of the FARs

Aircraft maintenance technicians are stalwart souls. They work in a very complex and stress-filled environment. However, some "experts," many who never earned a callous palm, assert that we technicians suffer from a minor, yet noticable character flaw.
They claim that we focus 100% our energy and time on more pragmatic, mundane, bread-and-butter issues such as fixing the aircraft right the first time and earning a paycheck. Our critics believe this intense focus on the practical leaves our profession little time to meditate on the prognostications of the federal government as found in the Federal Aviation Regulations.
As a public service to my profession and to silence our common detractors, I have developed a primer, Bill's notes on regulations, if you will, that if used, should bring technicians up to speed on at least 70 percent of the regulations or FAA policy that a technician working on Part 91 aircraft will bump up against.
Because of the huge amount of material that I will cover, I will divide Bill's notes into two parts. The second part will be published in the July/August publication.
Keep in mind, however, these notes, like the ones you can buy for high school or college courses, are just an overview of a subject. These notes cut the wheat from the chaff, but they are no substitute for studying the real thing.
These notes will give you knowledge of, but not a complete understanding of, the subject. With additional self-study of the regs and these notes as a guide, you should give yourself a passing grade. You might even hold your own while debating the rules with an FAA inspector. But like buying Cliff's Notes in college, it is no sure guarantee of an "A," and there is no guarantee these notes will put you on the FAA's regulatory expert dean's list.

An overview of the FARs
The authority for all Federal Aviation Regulations (FARs), N-numbers, registration, technician and pilot certificates comes from the Act of 1958. Just recently it was recodified into Title 49, Public Law, 103-272, dated July 5, 1994.
All regulations for everything that is federally regulated are found in the Code of Federal Regulations. The U.S Code is broken down into 50 huge titles. Regulations concerning aviation and space are found in Title 14. Title 14 is further broken down from the biggest to the smallest by using chapters, sub-chapters, parts, sub-parts and sections. The term "section" is a legal term for an individual rule. Initially, all the parts and individual sections or rules are given odd numbers. This is done to leave room for additional parts and sections.
PART 1: Definitions and abbreviation: If you are going to debate with the local Flight Standards District Office inspector over the airworthiness of a repair or alteration you have performed, make sure that the words or terms that you use in your argument are the same as the "legal" definition of the words in FAR 1. An example of this legalese is found in the Part 1 definition of maintenance which includes inspection; however, in the Part 1 definition of the term inspection, maintenance is not included. (ref: Part 1)
• Most students of the FAR are amazed to find the definition of the term "airworthy" is not in Part 1. The definition is found on the Standard Airworthiness Certificate, FAA Form 8100-2, AC 65-19, IA Study Guide, AC 20-5, Plane Sense and numerous NTSB case law rulings. Airworthy can be defined as an aircraft or one of its component parts that meets its type design or properly altered condition, and is in condition for safe operation.

PART 11: General Rulemaking Procedures:

This part explains the rulemaking process. But Section 11.25 is probably the most important of all the rules in Part 11 because it explains how anyone can petition the U.S. government to change a rule, get rid of one, or make a new one. It also explains in a cookbook simple manner how to petition the government to grant an exemption from a rule that is having a less than positive effect on your business or certificate.

PART 21: Certification Procedures for Products and Parts

In this part all the requirements for type certificate, production certificates, and airworthiness certificates are addressed. While this is nice to know, information in this part also talks about how to get an Supplemental Type Certificates (STC), and the requirements for replacement parts and approvals.

Section 21.303 replacement and modification parts requires that all replacement parts used on an aircraft must be produced under a Parts Manufacturer Approval (PMA). However there are four exceptions:

— Parts approved under a type or production certificate.
— Parts produced by an owner or operator for maintaining or altering his own product.
— Parts produced under a Technical Standard Order (TSO)
— Standard parts such as fasteners, safety wire, etc.

Part 39: Airworthiness Directives

ADs are mandatory maintenance requirements, and can apply to all aircraft and related products. Some ADs can immediately ground the aircraft until complied with, while others set future inspection and maintenance requirements years into the future. However, a new or later AD should never be ignored.

• If you look up Part 39 ADs in the FAR you will find that this part has only four regulations, or so it would appear. Actually this part has thousands of regulations because each AD that is issued is considered a rule or section under Part 39. This makes Part 39 bigger than all of the combined parts in the FAR.

• There are three kinds of ADs. There is the emergency AD or priority letter, the immediate adopted rule, (these two do not go through the notice of proposed rulemaking process) and can be issued within hours or days, and the notice of proposed rulemaking for ADs which must go through all the regulatory rulemaking hoops and takes approximately three years.

• All ADs are issued biweekly. They are identified with an AD number such as AD 96-1-12. The number 96 stands for the year the AD was issued, the 1 means that it was the first biweekly issue (first two weeks of January) and the 12 means that the AD was the 12th AD issued during that biweekly period.

• Each AD that is issued has three main components: applicability, (make, model, or serial number), required inspection or maintenance to be performed, and the compliance period, (one time, calendar, hours, or combination of the last two). It also has the name and telephone number of who to contact if you have a question or an alternate means of complying with the AD.

• ADs are divided into small and large aircraft (12,500 pounds or larger) volumes. Each volume is further divided into books 1 and 2. Book 1 is for all ADs issued prior to January 1, 1980. Book 2 is for ADs issued after that date.

Part 43: Maintenance, Preventive Maintenance, Rebuilding, and Alterations

This part contains only 12 regulations and five appendixes. Since this is the part that has the greatest impact on technicians and repairmen, this is the part that should be studied. Part 43 has five basic parts:

1. Applicability : What kinds of aircraft this part can be used on. This part limits technicians to working on U.S. registered aircraft or a foreign aircraft operating under a U.S. Part 121 or 135 operating certificate.
2. Authorized persons: Who can work on an aircraft — anybody in the world can work on an aircraft under a certificated technician's or repair station or air carrier or private pilot's supervision.
3. Approval for return to service: The individuals who can sign a logbook are: A&P, IA, manufacturer, holder of an air carrier certificate under 121, 135, 127, a private pilot or better.
4. Record keeping: Technicians can approve for return to service just two things. Maintenance they have performed (ref: Part 43.9), and inspections they have performed (ref: Part 43.11). IAs have the additional privileges of approving for return-to-service annual, approving data in AC 43.13-1A and signing off progressive inspections and major repairs and major alterations.
• According to Section 43.9 of Part 43 a maintenance entry must contain at least five things: date, description of the work performed or acceptable data used, signature of the person performing the work, and their certificate number.
• According to Section 43.11 of Part 43 an inspection entry must contain six things: date, total time, kind of inspection performed, signature, the kind of certificate held, and the certificate number of the individual performing the inspection. Total time is identified as the amount of time the aircraft spent in actual flight. Total time can be recorded by tack time, or hobbs meter time, or recorded logbook flight time.
• An annual inspection entry should be made in the airframe logbook, but additional "annual" inspections entries in the powerplant(s) or propeller(s) logbooks are acceptable if not redundant. However, any maintenance performed on either the airframe, powerplant(s) or propeller(s) during the annual inspection should be properly entered in the applicable logbook or maintenance record in accordance with section 43.9 of Part 43.
• Perhaps the strictest rule in Part 43 is Section 43.12 – Maintenance records, falsification, reproduction or alteration. This rule forbids any deliberate or intentional falsification, alteration or reproduction of maintenance records. The FAA takes a real dim view of people who put innocent lives at risk when they sign off on an unairworthy aircraft or part, and will do all in its power to send the individual directly to jail without collecting $200.
• This does not mean to say the Section 43.12 of Part 43 will send you to jail because you made an honest error in the paperwork. If you make a mistake, or find one, put a line through the maintenance entry so it still can be read, and initial and date the cross-through. Next make another entry with the correct information and explain why this new entry was needed and date and sign it.
• Technicians are held responsible by the FAA only for any maintenance (repair or alteration) they have performed and signed off under Section 43.9, until that work is replaced, altered, removed, or inspected. In other words, they hold the wet paper bag of responsibility on the work that they have performed and that work must remain airworthy for a period of time. Usually this is period of time is no longer than a year because an annual inspection must be performed.
• Technicians should understand that paragraph (a)(4) of Section 43.9 states that when a technician signs the maintenance entry, the technician signature constitutes an "approval for return to service," even though the actual words are not put into the logbook.
• Technicians are held responsible by the FAA for any inspection that they have performed in accordance with Section 43.11 until the ink of their signature dries.
• When a 100-hour inspection is performed by an A&P or an annual inspection is signed off by an IA, that IA is no longer responsible for the airworthiness of the aircraft once that aircraft leaves his or her care. When the technician signs off the logbook, his signature is not a guarantee of future airworthiness but a guarantee that past maintenance, inspections, major repairs and major

alterations have been reinspected and the aircraft was airworthy at the moment it was approved for return to service.

• When a technician or IA reviews the aircraft records, it is vital that the aircraft's data plates information be check against the logbook records. This information must then be checked against the type certificate data sheet or specification sheet for the aircraft, engine, or propeller to ensure that nonapproved engines, propellers, or appliances have not been installed sometime in the dim past.

• Another record, the 8130-3 Airworthiness Tag, now found on parts and in logbooks in great numbers was issued by the FAA a little over three years ago. The tag cannot be signed off by technicians; they can be signed off only by IAs, repair stations, designees,(DAR, DMIR) and air carriers. However, technicians should know that the tag can be used for four purposes: parts identification, conformity inspection, export, and maintenance.

• Accordancing to FAA Order 8130-21, the "original" order for the tag, the term "newly overhauled" means a product that has not been operated or placed in service, except for functional testing, since being overhauled, inspected, and approved for return to service. (ref: 43.2 definition of overhaul, and FAA Order 8130-21).